

COMMENTARY

# *Neo Two-cancer* Screening Benefits Both Nation and the People—A Response to Fight for Men’s Health: Call of Bladder Cancer and Prostate Cancer Screening

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Bladder cancer and prostate cancer have already become the top two killers, on the account of high incidence and mortality rates of these two cancers, which were also ranked the top two among urologic neoplasms. In recent years, with the development of people’s living standard, it is indicated in the cancer reports of several cities that the incidence of bladder cancer and prostate cancer is trending higher, and these two cancers have been the serious threat to men’s physical and spiritual health<sup>[1,2]</sup>.

However, compared to women’s two cancers, namely, breast cancer and cervical cancer, fewer people have a good understanding to bladder cancer and prostate cancer abbreviated as men’s *neo two cancers*. It seems that there is quite a long way to go before we make “early screening, early diagnosis, and early treatment” come true. Therefore, Dr. Chong Li, the Editor-in-Chief of Cancer+ from the Institute of Biophysics, Chinese Academy of Sciences, had published a call for men’s *neo two cancers* titled as *Fight for men’s health: Call of bladder cancer and prostate cancer screening*, which is just in time and will benefits both the nation and the people.

Early screening, diagnosis, and treatment can bring great benefits to the patients with cancers, and they constitute an essential step in cancer preventive approaches<sup>[3]</sup>. Due to various reasons, however, there is been a slow progression of *neo two cancers* diagnosis. Conceptually, overwhelming majority of men are shouldering multiple pressures from the family and society, so they hardly focus on their health. They even continue working in spite of diseases and are often detected as terminal cancers which are very difficult to cure. Technologically, during the past decades, the diagnostic method has been developing at a slower pace, which also limits the promotion of *neo two-cancer* screening<sup>[4,5]</sup>. Fortunately, more and more medical researchers and clinicians turn their attention to men’s *neo two cancers* and dedicate themselves to the screening, diagnosis, and treatment of *neo two cancers*.

In recent years, China has paid high attention to preventive screening, early diagnosis, early treatment, and related scientific research, and the diagnostic method of *neo two cancers* has seen a great progress. Dr. Chong Li *et al.* from the Institute of Biophysics, Chinese Academy of Sciences, developed a urinary non-invasive bladder cancer test method which is regarded as “the revolutionary breakthrough ever since the past forty years in the research area of bladder cancer” by international peers and which was elected as one of the creative scientific and technological achievements of the Institute of Biophysics, Chinese Academy of Sciences. Cystoscopy, the standard procedure for the detection of bladder cancer, is expensive and invasive. Here, Dr. Chong Li generated BCMab1, an antibody against the aberrantly glycosylated integrin  $\alpha 3 \beta 1$ , which can non-invasively target bladder cancer cell and bladder cancer stem cells with high sensitivity and specificity<sup>[6-8]</sup>.

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BCMab1 shows many advantages compared with previous molecular markers including MMP22, bladder tumor antigen (BTA), bladder carcinoma 4 (BLCA-4), urinary bladder cancer, DD23, survivin, BLCA-4, and so on<sup>[9,10]</sup>. Many previous markers cannot distinguish bladder and infectious conditions and 80% of the false-positive results indicate infectious conditions, benign inflammatory or bladder calculi, while BCMab1 can distinguish well<sup>[9]</sup>. The sensitivity and specificity of MMP22 are 95.6% and 87.5%, whereas BTA are 91.5% and 69.7%, and the sensitivity and specificity of BCMab1 are higher than 95%<sup>[9]</sup>. With the purpose of realizing early screening and non-invasive test of bladder cancer to benefit the masses, the research team in Medical Immunodiagnostic Research Center, Institute of Biophysics, Chinese Academy of Sciences faced many difficulties in the past decade, and finally, they developed a series of simple, efficient, and accurate bladder cancer test kits which are beneficial to the majority of bladder cancer patients and people who are susceptible to bladder cancer. At the same time, the Mass Spectrum Research Team, School of Life Science, Tsinghua University, developed a mass spectrometric (MS) detection method for prostate cancer with high sensitivity. They have established a thorough urine screening technology for early prostate cancer. Through gas chromatography–MS/MS, they can detect dehydroepiandrosterone with a concentration between 0.1 and 100 µg/L, with correlation coefficient (r) of 0.9996<sup>[11]</sup>.

To maximize the benefit to patients of *neo two cancers*, Dr. Chong Li's lab, Medical Immunodiagnostic Research Center, Institute of Biophysics, Chinese Academy of Sciences, and the Mass Spectrum Research Team, School of Life Science, Tsinghua University, jointly initiate the call for screening of *neo two cancers*.

The aforementioned detection methods are technologically mature, but our understanding toward their diagnostic efficacy still remains in infancy phase. Therefore, a call for *neo two-cancer* screening is a timely effort not only to ensure early screening, prevention, and treatment of these cancers in men but also to corroborate the diagnostic potential of these methods. Realizing that, both bladder cancer and prostate cancer are the top two killers, every man should be health conscious and engage in the *neo two-cancer* screening.

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